AMENDMENTS TO THE DRAWINGS

Applicant submits herewith a replacement drawing sheet. The replacement drawing sheet includes corrected figure labels.

REMARKS

Claims 37-52 are pending. Claims 37-52 are new. Claims 1-36 are canceled.

New Claims

New claims 37-52 more clearly and precisely claim the invention. These claims are entirely supported by the original description, drawings and claims. No new matter is presented in the claims.

Objection to the Specification

Applicants respectfully request reconsideration and withdrawal of the objection to the specification. The specification has been amended to include proper section beadings, as suggested by the Examiner.

Objections to the Drawings

Applicants respectfully request reconsideration and withdrawal of the rejection of the drawings for lacking individual figure labels. The replacement sheet attached hereto has been amended to label the figures as FIG. 1 and FIG. 2.

Claim Objections

Applicants respectfully request reconsideration and withdrawal of the objection to claims 32 for reciting elements that render the method mutually exclusive of claim 36. Claims 32 and 36 have been canceled, and the objection is therefore moot.

Claim Rejections - 35 U.S.C. §112

Applicants respectfully request reconsideration and withdrawal of the rejections of claims 22-24, 29-30 and 36 under 35 U.S.C. §112, first and second paragraphs, based on the use of the term "causing" in claim 36. Claims 22-24, 29-30 and 36 have been canceled. New claims 37-52 do not include the term "causing".

Claim Rejections - 35 U.S.C. §103

Applicants respectfully request reconsideration and withdrawal of the rejection of claims 36, 22 and 29-30 under 35 U.S.C. §103(a) as being unpatentable over Hawtof (US 6,565,823) in view of Takahashi (US 4,388,098).

Claims 36, 22 and 29-30 have been canceled, and the rejection is therefore moot. New claims 37-52 are not obvious in view of Hawtof and Takahashi. Claims 37-52 recite a method comprising introducing a first, gaseous or vaporous, glass component to a flame through a nozzle and introducing a second glass component to a vicinity of the flame through the nozzle, wherein the second glass component is a liquid solution. The combined teachings of Hawtof and Takahashi would not teach or suggest such a method to one of ordinary skill in the art.

Hawtof teaches a liquid silicon component and states that "A small portion of reactant can be in vapor form as delivered to the combustion site without adversely affecting the operation of the invention. See col. 7, lines 42-44 of Hawtof. Thus, Hawtof suggests that, although a *small portion* of vaporous reactant can be accommodated, it is generally undesirable to introduce a vaporous reactant to the combustion site. Therefore, one of ordinary skill in the art would not seek to modify the Hawtof invention with the teachings of Takahashi, since Hawtof actually teaches away from using a vaporous reactant such as that disclosed by Takahashi.

Furthermore, a skilled artisan would certainly recognize that, in addition to Hawtof teaching different raw materials than Takahashi, Hawtof teaches spray velocities which are greater than 10 m/sec, while Takahashi uses low spray velocities (p. 6, lines 48-56). Such differences in the two processes also raise considerable doubt as to whether the process parameters of the two methods are combinable. Individual portions of teachings from two references employing different process parameters and different raw materials cannot simply be combined without considering the entire teachings of the references. A prior art reference must be considered as a whole, including portions that would teach away from the claimed invention.

W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Additionally, in analyzing the differences between the prior art and the claims under §103, one must consider not whether the differences themselves would have been obvious, but whether the claimed invention *as a whole* would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983).

Applicant respectfully submits that the Examiner has not considered the claimed invention as a whole, and has not considered the teachings of the prior art references in their entirety. Instead, the Examiner appears to have selectively applied only those teachings of the prior art that are useful in reconstructing Applicant's claimed invention without considering the elements in the prior art that teach away from the claimed invention. For at least the above reasons, Applicant submits that claims 37-52 are allowable over Hawtof and Takahashi.

Applicants respectfully request reconsideration and withdrawal of the rejection of claims 23-24 under 35 U.S.C. §103(a) as being unpatentable over Hawtof, Takahashi and Ainslie (US 4,923,279). Claims 23-24 have been canceled. Claims 37-52 are not obvious in view of the teachings of Hawtof, Takahashi and Ainslie. Claims 37-52 are allowable over Hawtof and Takahashi for the reasons stated above. Ainslie teaches a manufacturing method based on immersing a preform in a liquid containing erbium. The Ainslie method is entirely different from the claimed method, and in no way teaches or suggests the claimed spraying method.

Applicants respectfully request reconsideration and withdrawal of the rejection of claims

Applicants respectfully request reconsideration and withdrawal of the rejection of claims 36, 22 and 29-30 under 35 U.S.C. §103(a) as being unpatentable over Randall (US 3,883,336) in view of Hawtof, Ainslie and Takahashi. Claims 36, 22 and 29-30 have been canceled. New claims 37-52 define the invention over the combined teachings of Randall, Hawtof, Ainslie and Takahashi.

The Examiner stated that Randall discloses the claimed invention, with the exception of rare earth metals. The Examiner further stated that: Hawtof discloses the use of rare earth metals in a similar process; Ainslie discloses the advantages of using rare earth metals; and Takahashi provides guidance regarding the use of solutions for rare earth dopants.

However, there are additional differences between Randall and the claimed invention. Each of the independent claims now pending (37, 42, 44, 46 and 51) recite a method in which all of the materials required in the process are fed through the same nozzle. The Examiner stated that nothing in the present specification limits the meaning of the term "nozzle". However, the nozzle 8 of the present invention is clearly shown in FIGS. 1 and 2. These figures show a nozzle of the device, not a part of the nozzle. The nozzle 8 clearly is a single piece comprising several tubes for introducing desired materials to the process. Since the recited method is directed to spraying material to a target, a single piece nozzle is required. In the absence of a single piece nozzle, it could be very complicated to focus the spray (see WO 00/20346 at p. 4, lines 11-16). Randall does not disclose that all of the materials are fed through the same nozzle.

As previously stated, Hawtof suggests that it is disadvantageous to introduce a vaporous reactant to the combustion site. Thus, there is no motivation to combine the teachings of Hawtof with those of Randall, wherein a vaporous reactant is used.

Also, as previously stated, Ainslie teaches a manufacturing method based on immersing a preform in a liquid containing erbium. The Ainslie method is entirely different from the claimed method, and in no way teaches or suggests the possibility of combining elements from such a process in the claimed spraying process.

In Takahashi, a method is disclosed in which a liquid component is nebulized in a separate nebulizer by supersonic vibration or by a carrier gas supplied from a conduit. The nebulizing does not take place in the vicinity of the flame as claimed, and the raw materials do not flow through the same nozzle. Thus, adding the teachings of Takahashi to those of Randall, Hawtof and Ainslie does not teach or suggest the claimed invention.

For at least the above reasons, the claimed method is patentable over the combination of Randall, Hawtof, Ainslie and Takahashi.

Declaration of Simo Tammela under 37 C.F.R. §1.132

As argued in previous responses, the claimed method produces more homogeneous particles by atomizing the rare earth metal-containing liquid in the vicinity of the flame and feeding the first and second glass components through the same nozzle. The combined teachings of the prior art do not suggest such a method. As evidence of the benefits of the claimed process over prior art methods, Applicant submits herewith a declaration from Simo Tammela. The declaration demonstrates the increased peak absorption of fibers produced by the claimed method as compared to the peak absorption of fibers produced by the OVD process of Corning Incorporated. Additionally, the declaration provides evidence of the commercial success of the inventive method.

Conclusion

In view of the above amendment, applicant believes the pending application is in condition for allowance.

If a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 20386-00294-US from which the undersigned is authorized to draw.

Dated: October 25, 2005

Respectfully submitted,

By_____

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